

CLAIMS

1. A method of manufacturing an electrochemical device comprising:

an electrochemical device matrix including first and second electrodes opposing each other;

a case, formed by first and second films opposing each other, for accommodating the electrochemical device matrix in a closed state;

a first lead having one end part connected to the first electrode and the other end part projecting out of the case; and

a second lead having one end part connected to the second electrode and the other end part projecting out of the case;

the method including a thermal fusion step of arranging the first and second films such that respective fringes thereof are in contact with each other between a pair of heating members opposing each other, and heating at least one of the pair of heating members while a contact portion of the fringes is pressed, so as to thermally fuse the first and second films to each other;

wherein at least one of the pair of heating members is formed with grooves having respective forms in conformity to forms of cross sections of the first and second leads at a part where the first and second leads are placed between the fringes of the first and second films.

2. A method of manufacturing an electrochemical device according to claim 1, wherein leads made of a metal each having a thickness of 0.05 to 3.00 mm are used as the first and second leads.

3. A method of manufacturing an electrochemical device according to claim 1, wherein a portion coming into contact with the

first and second leads in the fringe to be thermally fused in at least one of the first and second films is deformed by drawing beforehand so as to have respective forms and sizes in conformity to forms and sizes of cross sections of the first and second leads; and then

5 the thermal fusion step is carried out.

4. A method of manufacturing an electrochemical device according to claim 3, wherein leads made of a metal each having a thickness of at least 0.10 mm are used as the first and second leads.

10 5. A method of manufacturing an electrochemical device according to one of claims 1 to 4, wherein leads made of a metal each having a cross-sectional area of 5.0×10^{-4} to 1.0 cm^2 are used as the first and second leads.

15 6. A method of manufacturing an electrochemical device according to one of claims 1 to 5, wherein electrodes each having a flat form and containing an electronically conductive porous body as a constituent material are used as the first and second electrodes;

 wherein a member made of an insulative porous body having a flat form is used as the separator; and

20 wherein the electrolytic solution fills the case such that the electrolytic solution is at least partly contained in the first and second electrodes and the separator.

25 7. A method of manufacturing an electrochemical device according to one of claims 1 to 6, wherein a composite package film comprising at least an innermost layer made of a synthetic resin in contact with an electrolytic solution and a metal layer disposed above the innermost layer is used as the first and second films.

8. A method of manufacturing an electrochemical device according to one of claims 1 to 7, wherein an adhesive made of a synthetic resin is applied beforehand to a surface portion of the first lead coming into contact with the fringe of the first film to be thermally fused and the fringe of the second film to be thermally fused, and to a surface portion of the second lead coming into contact with the fringe of the first film to be thermally fused and the fringe of the second film to be thermally fused, and then the thermal fusion step is carried out.

9. A method of manufacturing an electrochemical device according to claim 8, wherein an adhesive containing at least one species of resin selected from the group consisting of denatured polypropylene, denatured polyethylene, and epoxy resin is used as the adhesive made of a synthetic resin.